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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/010,721	11/13/2001	Yoshiaki Komma	10873.850US01	2720
23552	7590	11/21/2005	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			PSITOS, ARISTOTELIS M	
			ART UNIT	PAPER NUMBER
			2656	

DATE MAILED: 11/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/010,721	<b>Applicant(s)</b> KOMMA ET AL. <span style="float: right;">K</span>
	<b>Examiner</b> Aristotelis M. Psitos	<b>Art Unit</b> 2656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
   
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
   
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 31 October 2005.  
 2a) This action is FINAL.                                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 6,7 and 15-19 is/are pending in the application.  
 4a) Of the above claim(s) 6 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 7 and 15-19 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 31 October 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_

5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

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#### DETAILED ACTION

Applicant's response of 10/31/05 has been considered with the following results.

Claim 6 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 11/5/04. It is noted that as presented claim 6 now depends from canceled claim 1. This is not in keeping with proper USPTO practice.

Applicants' cooperation in providing a copy of the certified English translation(s) is greatly appreciated.

#### *Specification*

The amendment to the title of the invention is greatly appreciated.

#### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the relationship as now presented in claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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### **Specification**

The amendment filed 10/31/05 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The material, which is not supported by the original disclosure, is as follows: the deletion of the particular material composition TiO2.

Applicant is required to cancel the new matter in the reply to this Office Action.

### **Claim Objections**

1. Claim 16 is objected to because of the following informalities: As now presented, this claim calls for both a diffraction body (lines 3-4) a diffraction means (line 21). Is this a double inclusion? Appropriate response is required.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 7,15-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, the amendments to the specification as presented in the above noted communication/response alters the disclosed invention as originally filed. All pending claims are now drawn to such a disclosure. This is not permitted.

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims 7,15-19 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that these claims fail(s) to

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correspond in scope with that which applicant(s) regard as the invention can be found in the specification as originally filed. As disclosed, figure 4 the elected species has only ONE base element, and not the breadth as now presented, i.e., the scope of the claim is not limited to the elected species.

***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claim 7 is rejected under 35 U.S.C. 102(b/e) or alternatively under 103 (a) as being anticipated/obvious over Tanabe et al – WO97/13245 further considered with the acknowledged prior art. The examiner is supplying the US equivalent document USPat. # 6118586 as the English translation thereof.

The following analysis is made:

Claim 7.

Tanabe et al

A diffraction grating body, comprising  
a base material, and a relief diffraction grating  
formed on the base material, wherein

see title/abstract

the refractive index n1 of the base material is 1.9  
or more,

see material as defined

in either col. 1 lines 40-43, or  
col 8, lines 30-34.

the diffraction grating is formed of a concave portion

see below

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and a convex portion having rectangular shaped cross sections, and the level difference  $h$  between the concave portion and the convex portion satisfies the following relationship

$$h = \lambda_1 / (n_1 - 1)$$

present – see below

and the difference in an optical path between

material(s) from the group

the concave portion and the convex

present.

portion is set to correspond to one wavelength

with respect to the wavelength  $\lambda_1$ , and

a material of the base material is at least one

material selected from

the group consisting of Ta205, Zr02, Nb203, ZnS, LiNbO2 and LiTaO3.

In the above analysis, the patent to Tanabe et al is drawn to an optical head/device and system – see figure 6 for instance for the system elements, wherein the base material is from an appropriately selected material, either as discussed at col. 1 lines 40-43 or col. 8 lines 30-34. Hence, the formulaic description is present, as is the refractive value. With respect to the “concave” and “convex” portions, the examiner interprets such as defining the pattern in Tanabe et al.

If applicants can convince the examiner that the pattern in Tanabe et al is not such, then the examiner relies upon the acknowledged prior art – figure 15b as teaching such a well-known pattern.

It would have been obvious to modify the base system of Tanabe et al with the recognized pattern, motivation is to use existing patterns and increase the options of the pattern and hence reduce the requirement of manufacturing by using existing techniques.

4. Claim 15 is rejected under 35 U.S.C. 103 (a) as being anticipated/obvious over Tanabe et al – WO97/13245 further considered with the acknowledged prior art as relied upon as stated above in

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paragraph 3 and all further considered with Ramdani et al. The examiner is supplying the US equivalent document USPat. # 6118586 as the English translation thereof.

Claim 15 follows/parallels claim 7 with the inclusion of:

a semiconductor laser for emitting a light beam

with wavelength  $\lambda_1$  and a

light beam with wavelength  $\lambda_2$ ; and

a photodetector for receiving the light beams

emitted from the semiconductor

laser and carrying out photoelectric conversion;

wherein

the diffraction grating body receives the light beam

$\lambda_2$  and transmits a main beam and generates

sub-beams that are ± first order diffracted

light; and

the diffraction grating body, the semiconductor

laser and the photodetector

are integrated into one package.

As depicted in Tanabe et al, such an overall system is described; however, no semiconductor laser(s) are so found.

Ramdani et al teach in this environment a semiconductor laser for plural wavelengths.

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It would have been obvious to modify the base system as stated/analyzed above with respect to claim 7 so as to provide for the overall elements as defined by the acknowledged prior art and further with the semiconductor laser teaching from Ramdani et al, motivation is to reduce the footprint of the optical system/integrated package.

5. Claims 16,18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 7 above, and further in view of the acknowledge prior art.

Claim 16 closely parallels claims 7 & 15 as analyzed above in paragraphs 3 and 4. Claim 16 differs from claim 15 by the inclusion of two semiconductor laser light sources as opposed to one in claim 15 as well as an a diffraction means and function thereof.

Such capabilities is considered present in the describe prior art figure 14.

It would have been obvious to modify the base system as relied upon in paragraph 4 so as to provide for separate light semiconductor sources as opposed to the single source in claim 15, motivation is to increase the reliability of the system, i.e., use of two light sources reliability as opposed to a single light source.

Alternatively, It would have been obvious to modify the base system as relied upon in paragraph 3 with the teaching from the acknowledged prior art of figure 14 so as to use the overall Tanabe et al optical device in established optical systems and hence increase the flexibility of such a device by including both cd and dvd formatted discs as the interactive record medium.

The limitations of claim 18 are considered also present in the acknowledged prior art, i.e., an integrated package.

With respect to claim 19, the additional elements, i.e., the focusing/tracking, information signal detecting elements, moving means and rotating means are considered well known and Official notice of such components in this environment is taken.

It would have been obvious to modify the base system as relied upon in either paragraphs 3 or 4 above with these additional elements, motivation is to provide for an operable dynamic system.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 16 above, and further in view of Funato.

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With respect to the limitation of claim 17, such is met by the Funato reference, see the description discussion with respect to figures 4a and b, starting at col. 11 line 45.

It would have been obvious to modify the base system as relied upon with respect to claim 16 as stated in paragraph 5 above with the teaching as found in Funato, motivation is as discussed in Funato as well as to reduce the overall footprint of the integrated package.

7. Claims 7,16 18 and 19 are rejected under 35 U.S.C. 103 (a) as being obvious over Katsuma considered with the acknowledged prior art (figures 14/15) and all further considered with Shimano et al.

The following analysis is made:

A diffraction grating body, comprising

Katsuma

a base material, and a relief diffraction grating  
formed on the base material, wherein

see description of  
figures 3,5,6,7

the refractive index n1 of the base material is 1.9  
or more,

see below

the diffraction grating is formed of a concave portion  
and a convex portion having rectangular shaped cross  
sections, and the level difference h between the  
concave portion and the convex portion  
satisfies the following relationship

acknowledged prior art

$$h = \lambda_1 / (n_1 - 1)$$

and the difference in an optical path between  
the concave portion and the convex

see below

and the secondary references

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portion is set to correspond to one wavelength i.e., the acknowledged prior art with respect to the wavelength  $\lambda_1$ , and and a material of the base material is at least one material selected from the group consisting of Ta205, Zr02, Nb203, ZnS, LiNbO2 and LiTaO3.

As interpreted by the examiner, the relief pattern of the diffraction grating – is made of a single body material – as disclosed with respect to example 1 as found in col. 7 starting at lines 51, TiO2.

With respect to the newly introduced concave/convex terminology although not clearly depicted in the base reference, such a relief pattern is acknowledged by applicants in their description of figure 15.

Furthermore, Shimano et al discusses the ability of lithium niobate as the appropriate material.

As further defined by claim, such a material being found, the refractive index is met.

With respect to the height, see the description of col. 2, lines 21 plus with respect to the various formulas recited yielding the height requirement.

With respect to claims 16,18 nd 19, see the description of figure 8, all the elements recited are depicted therein.

It would have been obvious to modify the base system of Katsuma with the above additional teachings from the acknowledged prior art to yield a relief pattern as described known in the prior art – motivation is to use existing relief patterns in reducing manufacturing processes/time frames etc.

Furthermore, as taught by the Shimano et al reference, the use of such materials is present/previoudly done, and again motivation would be to reduce manufacturing processes.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 16 as stated in paragraph 7 above, and further in view of Funato.

As interpreted by the examiner, with respect to the limitation of claim 17, such is met by the Funato reference, see the description discussion with respect to figures 4a and b, starting at col. 11 line 45.

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It would have been obvious to modify the base system as relied upon with respect to claim 16 as stated in paragraph 5 above with the teaching as found in Funato, motivation is as discussed in Funato as well as to reduce the overall footprint of the integrated package.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the art as applied to claim 7 as stated in paragraph 7 above, and further in view of Ramdani et al.

Ramdani et al teach in this environment a semiconductor laser for plural wavelengths.

It would have been obvious to modify the base system as stated/analyzed above with respect to claim 7 so as to provide for the overall elements as defined by the acknowledged prior art and further with the semiconductor laser teaching from Ramdani et al, motivation is to reduce the footprint of the optical system/integrated package.

#### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristotelis M. Psitos whose telephone number is (571) 272-7594. The examiner can normally be reached on M-Thursday 8 - 3.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aristotelis M Psitos  
Primary Examiner  
Art Unit 2656

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